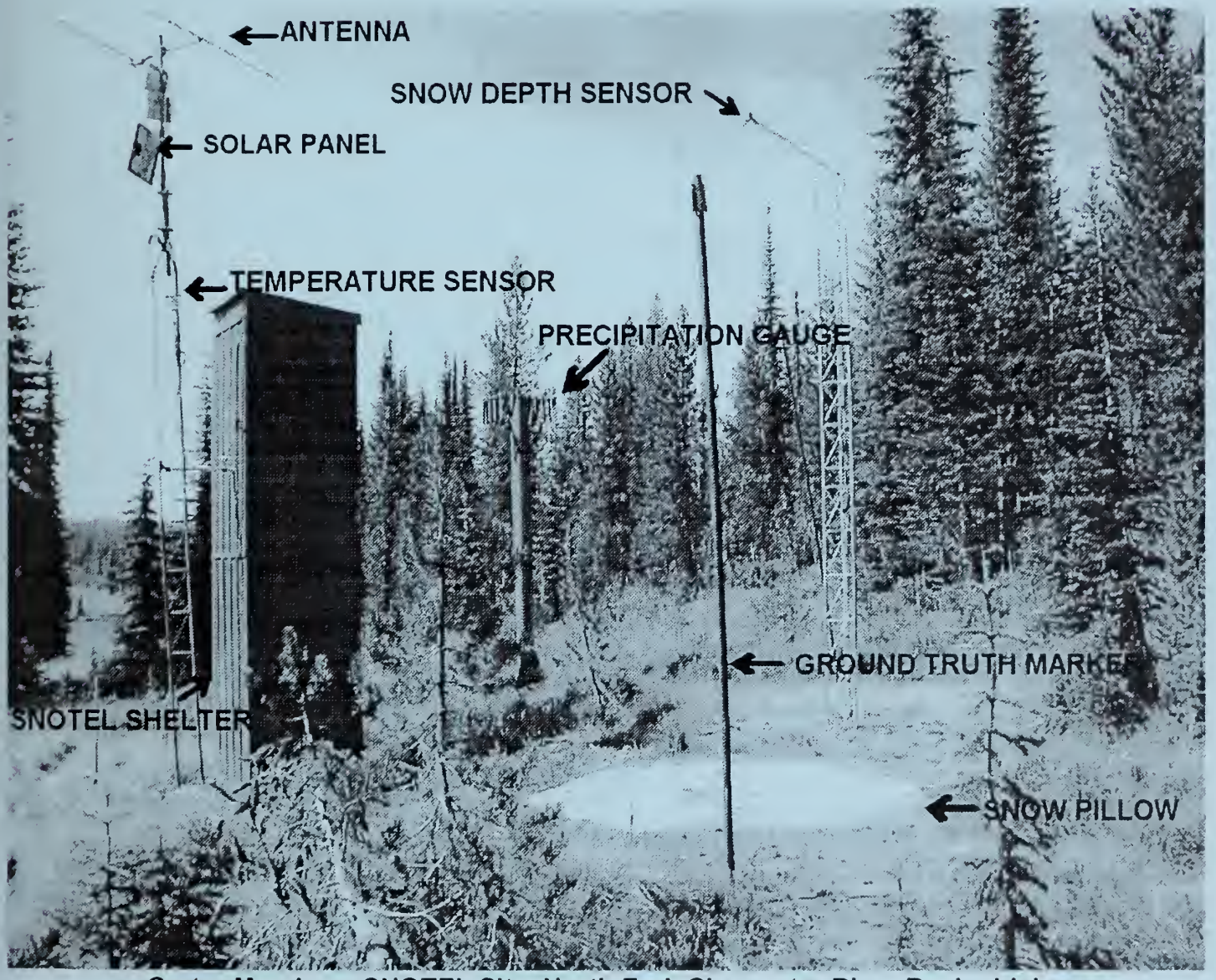
NRCS

United States Department of Agriculture
Natural Resources Conservation Service

Idaho Water Supply Outlook Report January 1, 2003



Crater Meadows SNOTEL Site, North Fork Clearwater River Basin, Idaho

Basin Outlook Reports
and
Federal - State - Private
Cooperative Snow Surveys

For more water supply and resource management information, or to subscribe to this publication

Contact - - Your local Natural Resources Conservation Service Office
or
Natural Resources Conservation Service
Snow Surveys
9173 West Barnes Drive, Suite C
Boise, Idaho 83709-1574
(208) 378-5740

Internet Web Address
http://www.id.nrcs.usda.gov/snow

Water supply forecasts are produced in cooperation and coordination with the National Weather Service, NOAA

How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

IDAHO WATER SUPPLY OUTLOOK REPORT

January 1, 2003

SUMMARY

Storms during the last week of December brought much needed snow and valley rains, but we have a long way to go to recover from the cumulative drought effects and provide adequate water supplies for irrigation, river runners, reservoir recreation, fish, hydropower and all those other uses. If it were not for the "big snow dump" the last week of December, we would be telling a different water supply story. Deadwood Summit SNOTEL in the middle of Idaho had its biggest dump since February 1999! The rest of the state, however, did not capitalize on the snowfall like the central mountains. As of January 8, snowpacks ranged from 65% of average in the Clearwater and Oakley basins to 135% in the central mountains; this is only a third to half of the seasonal snow water content peaks that occur around April 1. Combined storage for the state's 21 reservoirs and lakes is the 4th lowest since 1958. Only December 1992, 1994 and last year had less in storage. The dry summer and fall has left a soil moisture deficit across most of the state. Some rivers were at or near record low levels in early November. With more than half the winter still to come, the water supply picture can change for the better or worse. Now that winter has started, let's hope those storms keep coming!

SNOWPACK

Snowfall was slow in coming to Idaho this year, but storms during the last week of December nearly doubled the snow across central Idaho from the Little Salmon basin to the Big Lost basin. However, other basins in the state did not receive as much snow and are still below normal. The following report shows current conditions as of January 8 from the automated SNOTEL network. It shows snow water equivalent as a percent of average for the given day and also compares today's snow water equivalent to the seasonal snow water equivalent peaks that occur around April 1. The second column provides additional information in comparing current snowpacks to their seasonal peak. If the snowpack were normal throughout the winter, the first column would be 100% every day; the second column would be approximately 20% on December 1, 40% on January 1, 60% on February 1, 80% on March 1, and 100% on April 1. This report is available at: http://www.id.nrcs.usda.gov/snow/snotel.htm

Snow Water Content as Percent of Average and Percent of Seasonal Peak
As of TUESDAY: JANUARY 8, 2003

Basin	Snow Water Equivalent Percent of Average For Jan. 8, 2003	Snow Water Equivalent Percent of April 1 Seasonal Peak
Idaho Panhandle Region	68	33
Clearwater Basin	65	31
Salmon Basin	88	40
Weiser Basin	97	45
Payette Basin	101	45
Boise Basin	93	43
Big Wood Basin	108	49
Little Wood Basin	135	59
Big Lost Basin	118	51
Little Lost, Birch Basins	75	35
Medicine Lodge, Beaver, Camas Basins	71	32
Henrys Fork, Teton Basins	72	33
Snake Basin Above Palisades	73	34
Willow, Blackfoot, Portneuf Basins	80	37
Oakley Basin	63	28
Salmon Falls Basin	73	33
Bruneau Basin	84	38
Owyhee Basin	87	40
Bear River Basin	69	30

PRECIPITATION

Water year 2002 ended with yearly precipitation amounts ranging from 110% of average in northern Idaho to 75% in central and southeastern Idaho. The 2003 water year started with precipitation ranging from 25% of average in the west-central mountains and Panhandle region to 87% in the Bear River basin. November amounts ranged from a low of 46% of average again in the west-central mountains to 72% in the Bear. Abundant moisture the last week of December, 140% of average for the month, helped tremendously across west-central and central Idaho, but precipitation in northern and southeastern Idaho was only 72% of average. As a result of the dry fall and late start for winter, water year to date precipitation is below normal across the state ranging from 62% of average in the Clearwater basin to 94% in the Wood and Lost basins.

RESERVOIRS

Reservoir storage remains low and similar to last year's storage. Priest Lake and Dworshak Reservoir are storing the most at near normal levels. The Payette reservoir system is 89% of average, while the Boise reservoir system is 59% of average. Magic Reservoir remains nearly empty for the second December in a row at only 8% of capacity. Mackay Reservoir is 23% of capacity, 42% of average; 5th lowest December 31 storage out of 78 years, only the mid-1930s Dust Bowl years had less storage than this year. The low storage is a sign of the dry summer and fall, soils and springs. Little Wood Reservoir is 24% of capacity. Combined reservoir storage in Palisades Reservoir and Jackson Lake is about 100,000 acre-feet more than a year ago but is the 4th lowest December 31 combined storage since 1957. Overall, the combined reservoir storage for the 7 major reservoirs in the upper Snake is 36% of capacity, 57% of average, just slightly better than a year ago. Salmon Falls, Oakley, Wildhorse and Owyhee reservoirs are storing about the same as a year ago, ranging from 5-25% of capacity or 20-50% of average. Bear Lake has 352,000 acre-feet; last year it had 574,300 acre-feet. This is the 9th lowest December storage since 1922.

Note: NRCS reports reservoir information in terms of usable volumes, which includes both active, inactive and in some cases dead storage. Other operators may report reservoir contents in different terms. For additional information, see the reservoir definitions in this report.

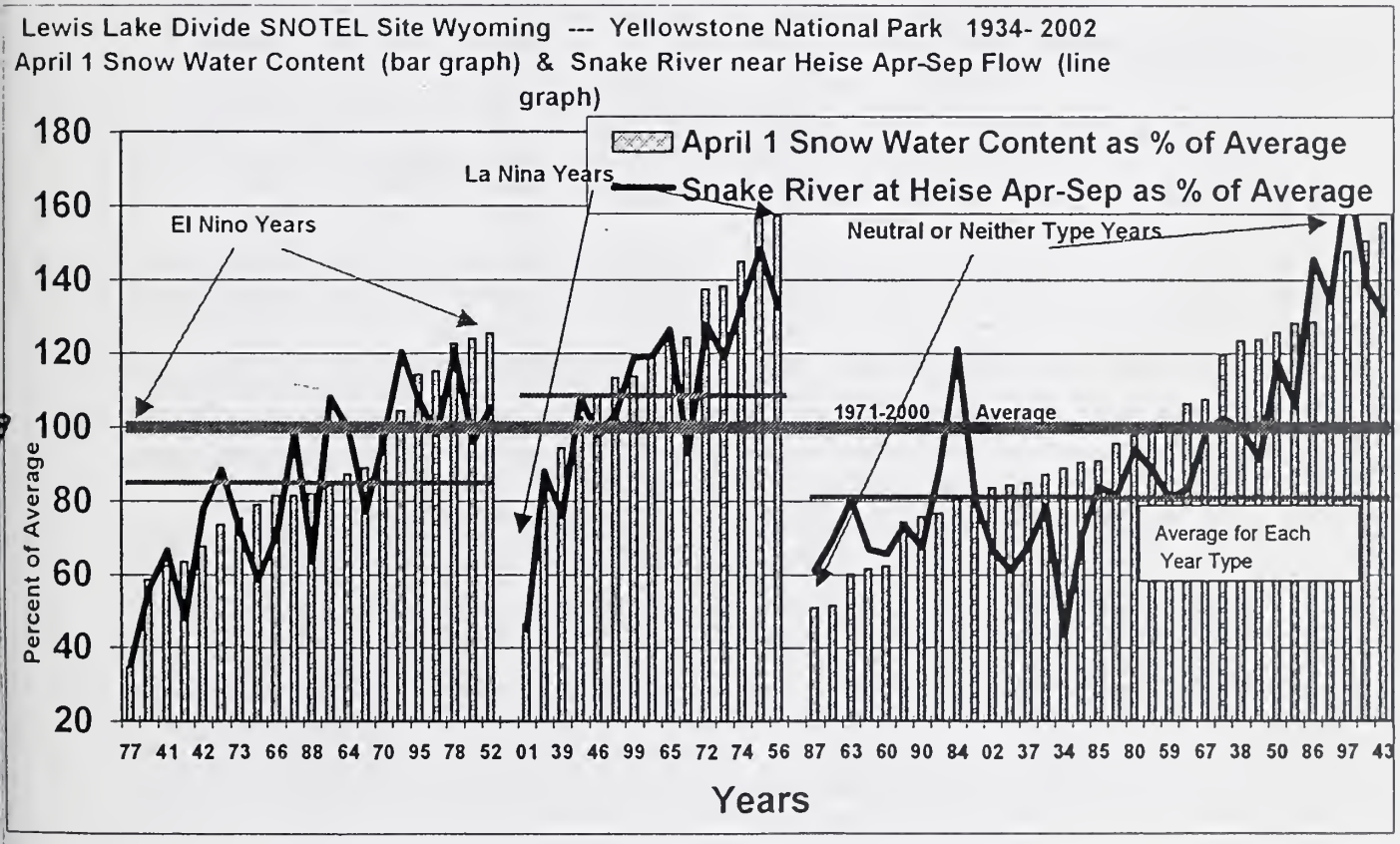
STREAMFLOW

Dry soils and lack of fall precipitation kept streams low this fall with some at or near record low levels in early November. The Bruneau River October - December total flow was the 4th lowest since 1944; only 1990, 1992 and 2002 had less flow than this year. Soil under the snowpack as monitored by soil moisture sensors at Jackson Peak SNOTEL site in the Boise basin at 4, 8 and 20 inches deep are almost as dry now as they were at the end of summer. Based on previous years of monitoring soil moisture, the dry soils under the snow may absorb 3-5 inches of water when the snow melts. Current streamflow forecasts range from 45% of average in the Bear River basin to normal volumes in the central mountains. Water managers should consider using the 90% or 70% Chance of Exceedance Probability forecasts because of the extreme dry soils and the inefficiency of the snowpack to produce a 1:1 correlation with streamflow following dry years. For example: the April 1, 1989, snowpack in the Big Lost basin was 96% of average but only yielded a summer streamflow of 40% of average; April 1, 2002, Big Wood basin snowpack was 81%, yielded a streamflow of 55%; and April 1, 2002, upper Snake snowpack was 80%, yielded 65% of average streamflow. Spring precipitation also influences the efficiency of the melting snowpack. With more than half the winter still to come, let's hope Mother Nature turns around and brings the much needed moisture across the entire state of Idaho!

RECREATION

Skiers and snowmobilers are rejoicing after the recent snowfalls, but river runners and farmers are still nervous knowing we have a long way to go to reach normal snow levels by April 1. The series of storms in late December nearly doubled the snow depth and water content from the Little Salmon to the Big Wood. Deadwood Summit SNOTEL in the middle of Idaho had its biggest dump since February 1999! It increased from 11.5 inches of snow water on December 26 to 19.4 inches on January 1; snow depths increased from 50 inches to 88 inches! However, because of the long dry spell between storms, a weak snow layer has increased avalanche danger across most of southern Idaho. Be careful in the backcountry.

River runners submitting applications for next year's lottery to run Idaho's river should once again think about requesting early to mid-summer dates as opposed to late summer. When El Nino is batting against us, like it is this year, only 5 out of 21 El Nino years since 1934 resulted in above normal April-July streamflow on the North Fork Clearwater River. For the Salmon River at White Bird, 11 out of 12 El Nino years since 1934 were above average; the average streamflow for these 12 years for the Salmon River is 88% of average. With 60% of winter still to come, Mother Nature could turn around and bring the much needed snow across all of Idaho!



IDAHO SURFACE WATER SUPPLY INDEX (SWSI) As of January 1, 2003

The Surface Water Supply Index (SWSI) is a predictive indicator of surface water availability within a watershed for the spring and summer water use season. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow. SWSI values are scaled from +4.1 (abundant supply) to -4.1 (extremely dry), with a value of zero indicating a median water supply as compared to historical occurrences.

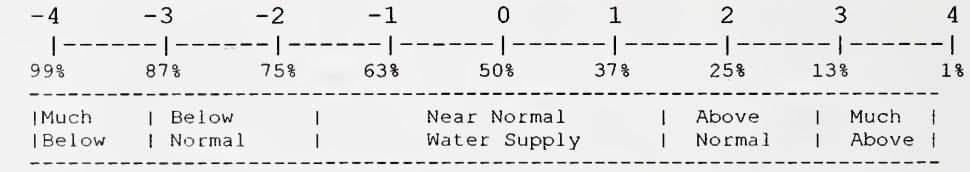
SWSI values are published January through May and provide a more comprehensive outlook of water availability than either streamflow forecasts or reservoir storage figures alone. The SWSI index allows comparison of water availability between basins for drought or flood severity analysis. Threshold SWSI values have been established for most basins to indicate the potential for agricultural water shortages.

The following agencies and cooperators provide assistance in the preparation of the Surface Water Supply Index for Idaho:

US National Weather Service
US Bureau of Reclamation
Idaho Water Users Association
US Army Corps of Engineers
Idaho Dept. of Water Resources
PacifiCorp

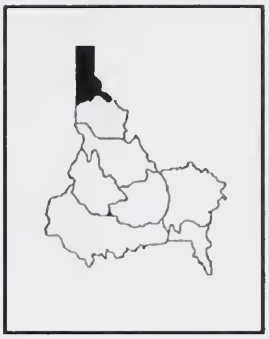
BASIN or REGION	*SWSI Value*	*Most Recent Year With Similar SWSI Value*	*Agricultural Water Supply Shortage May Occur When SWSI is Less Than*
PANHANDLE	-2.5	1998	NA
CLEARWATER	-2.2	1983	NA
SALMON	-0.6	1995	NA
WEISER	0.1	1986	NA
PAYETTE	-0.1	1981	NA
BOISE	-1.3	1985	-2.6
BIG WOOD	-0.4	1985	-1.4
LITTLE WOOD	0.7	1996	-2.6
BIG LOST	-0.2	1993	-0.8
LITTLE LOST	-0.8	1985	0.0
HENRYS FORK	-2.0	1990	-3.3
SNAKE (HEISE)	-2.7	1987	-2.3
OAKLEY	-1.6	1989	0.0
SALMON FALLS	-1.9	1994	0.0
BRUNEAU	-1.3	1991	NA
BEAR RIVER	-3.9	2002	-3.8

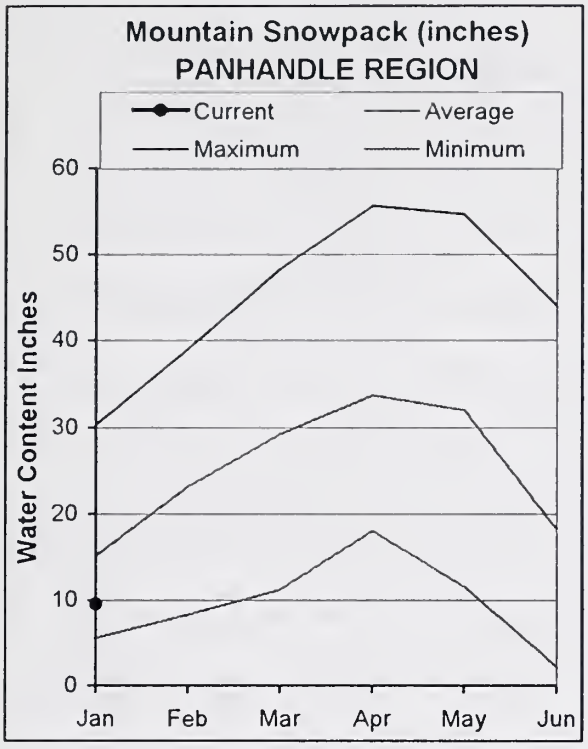
SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION

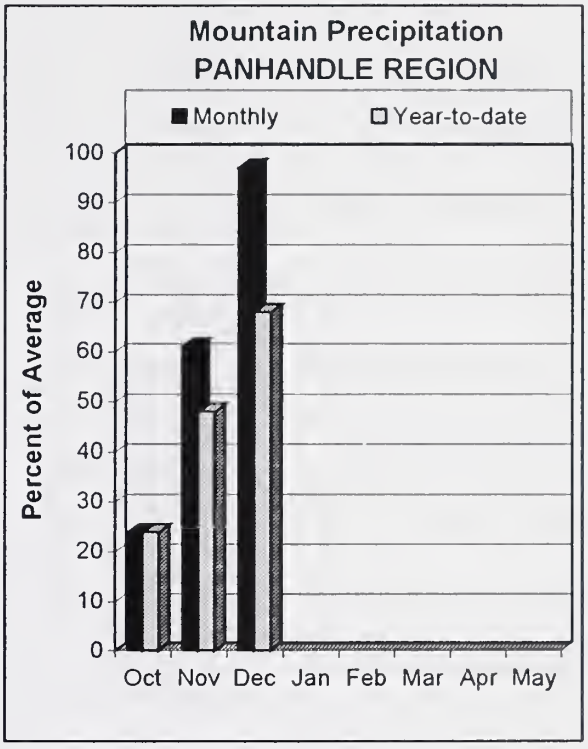


Note: The Percent Chance of Exceedance is an indicator of how often a range of SWSI values might be expected to occur. Each SWSI unit represents about 12% of the historical occurrences. As an example of interpreting the above scale, the SWSI can be expected to be greater than -3.0, 87% of the time and less than -3.0, 13% of the time. Half the time, the SWSI will be below and half the time above a value of zero. The interval between -1.5 and +1.5 described as "Near Normal Water Supply," represents three SWSI units and would be expected to occur about one-third (36%) of the time.

PANHANDLE REGION
JANUARY 1, 2003







WATER SUPPLY OUTLOOK

The new water year got off to a slow start with monthly SNOTEL precipitation for October at only 24% of average, November was 61% and December was 97%. As a result, water year to date precipitation is only 68% of average, 2nd lowest in the state behind the Clearwater River basin. Let's hope the precipitation keeps improving each month. Snowpacks are only 50-60% of average in the Coeur d'Alene, St. Joe and Spokane basins; 84% in the Moyie basin; and 100% in the Priest basin. However, the snowpack is only a third of its seasonal peak snow water content amounts that occur around April 1, so we still have a long ways to go to have a normal snowpack by April 1. In addition, El Nino type years like this year usually favor below normal snowfall in northern Idaho, resulting in low spring/summer streamflows. A below normal snowpack in the Panhandle and Clearwater basin may be the norm this winter. Storage in Priest Lake is normal, while Coeur d'Alene Lake is 72% of average. Streamflow forecasts reflect the low snow and range from 60-85% of average. With more than half the winter still to come, let's hope the second half brings much more snow!

PANHANDLE REGION
Streamflow Forecasts - January 1, 2003

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
KOOTENAI at Leonia (1,2)	APR-JUL	3664	4961	5550	79	6139	7436	7035
	APR-SEP	3678	5550	6400	79	7250	9122	8125
MOYIE RIVER at Eastport	APR-JUL	230	290	331	82	372	432	403
	APR-SEP	240	303	345	83	387	450	418
SMITH CREEK	APR-JUL	72	90	102	83	114	132	123
	APR-SEP	73	93	106	82	119	139	129
BOUNDARY CREEK	APR-JUL	79	96	107	87	118	135	123
	APR-SEP	83	100	112	87	124	141	129
CLARK FK at Whitehorse Rpds (1,2)	APR-JUL	2459	5850	7390	66	8930	12321	11280
	APR-SEP	2693	6425	8120	65	9815	13547	12460
PEND OREILLE Lake Inflow (2)	APR-JUL	4285	6759	8440	67	10121	12595	12700
	APR-SEP	4676	7381	9220	66	11059	13764	13900
PRIEST near Priest River (1,2)	APR-JUL	444	586	650	80	714	856	814
	APR-SEP	365	592	695	80	798	1025	868
COEUR D'ALENE at Enaville	APR-JUL	313	439	525	71	611	737	739
	APR-SEP	334	465	555	71	645	776	778
ST. JOE at Calder	APR-JUL	501	685	810	71	935	1119	1136
	APR-SEP	545	733	860	71	987	1175	1205
SPOKANE near Post Falls (2)	APR-JUL	1217	1404	1740	68	2076	2570	2552
	APR-SEP	1250	1464	1810	68	2156	2664	2650
SPOKANE at Long Lake (2)	APR-JUL	1226	1537	1970	69	2403	3041	2851
	APR-SEP	1321	1643	2100	68	2557	3229	3072

PANHANDLE REGION
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HUNGRY HORSE	3451.0	2551.0	2560.0	2420.9
FLATHEAD LAKE	1791.0	1192.0	1437.0	1192.7
NOXON RAPIDS	335.0	323.4	317.5	315.8
PEND OREILLE		NO REPORT		
COEUR D'ALENE	238.5	79.5	64.6	110.1
PRIEST LAKE	119.3	58.0	57.5	55.7

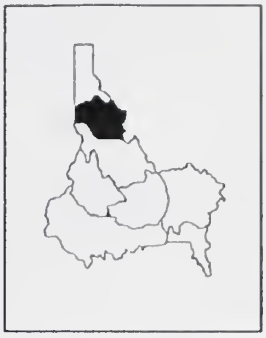
PANHANDLE REGION
Watershed Snowpack Analysis - January 1, 2003

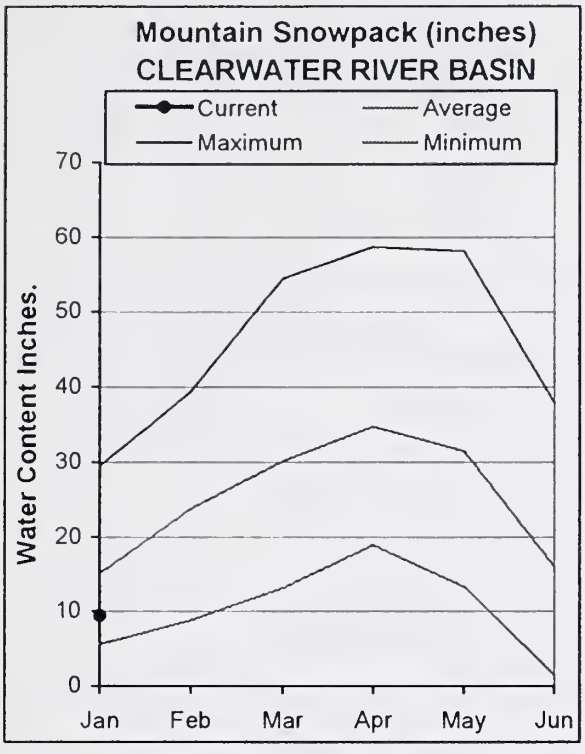
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Kootenai ab Bonners Ferry	7	71	71
Moyie River	1	85	84
Priest River	3	75	97
Pend Oreille River	63	71	61
Rathdrum Creek	3	43	74
Hayden Lake	0	0	0
Coeur d'Alene River	6	49	54
St. Joe River	3	50	51
Spokane River	11	46	56
Palouse River	1	27	33

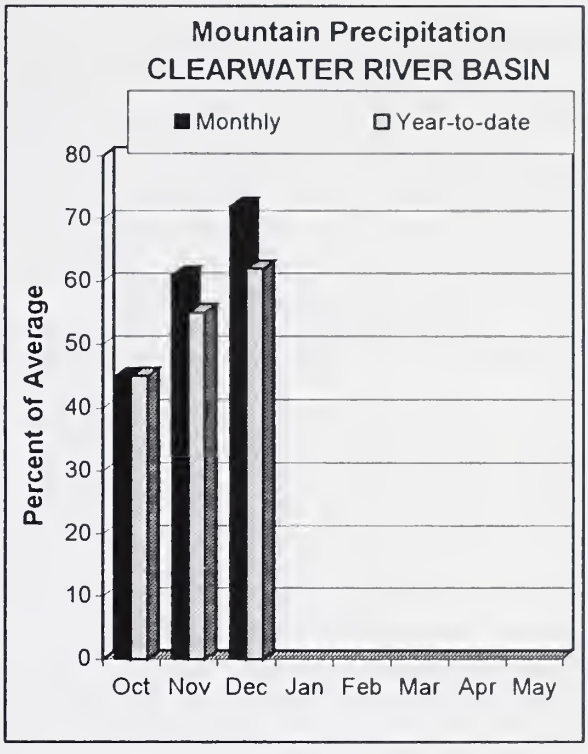
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

CLEARWATER RIVER BASIN
JANUARY 1, 2003







WATER SUPPLY OUTLOOK

The new water year started off with October precipitation at 45% of average, November at 61% and December at 72%. Precipitation for the water year is 62% of average, the lowest in the state. Snowpack percentages are nearly the lowest in the state ranging from 59% of average in the North Fork Clearwater basin to 75% of average in the Selway basin. Overall, the Clearwater basin snowpack is 61% of average. Above normal moisture the next few months is needed to reach normal snow levels by April 1. However, with El Nino batting against us, this may be difficult as only 5 out of 21 El Nino years since 1934 resulted in above normal April-July streamflow on the North Fork Clearwater River. A below normal snowpack in the Panhandle and Clearwater basin may be the norm again during this El Nino type winter. Dworshak Reservoir is near normal at 63% full for this time of year. Spring and summer streamflow forecasts mirror the snowpack with the Selway River forecast at 71% of average, Lochsa River at 66%, and Dworshak Reservoir inflow at 71%. With more than half the winter still to come, lets hope that this El Nino type year brings another anomaly to the El Nino statistics with above normal snow and summer streamflow this year!

CLEARWATER RIVER BASIN
Streamflow Forecasts - January 1, 2003

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SELWAY near Lowell	APR-JUL	1083	1245	1460	71	1675	1991	2062
	APR-SEP	1144	1314	1540	71	1766	2098	2170
LOCHSA near Lowell	APR-JUL	749	850	1010	66	1170	1405	1530
	APR-SEP	807	913	1075	67	1237	1476	1609
DWORSHAK RESV INFLOW (1,2)	APR-JUL	929	1404	1870	71	2352	2800	2635
	APR-SEP	976	1480	1980	71	2487	2963	2799
CLEARWATER at Orofino (1)	APR-JUL	2230	2921	3390	73	4080	5599	4645
	APR-SEP	2420	3111	3580	73	4270	5789	4900
CLEARWATER at Spalding (1,2)	APR-JUL	3305	4013	5180	70	6347	8918	7435
	APR-SEP	3624	4723	5470	70	6637	9208	7850

CLEARWATER RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DWORSHAK	3468.0	2194.6	2285.8	2228.2

CLEARWATER RIVER BASIN
Watershed Snowpack Analysis - January 1, 2003

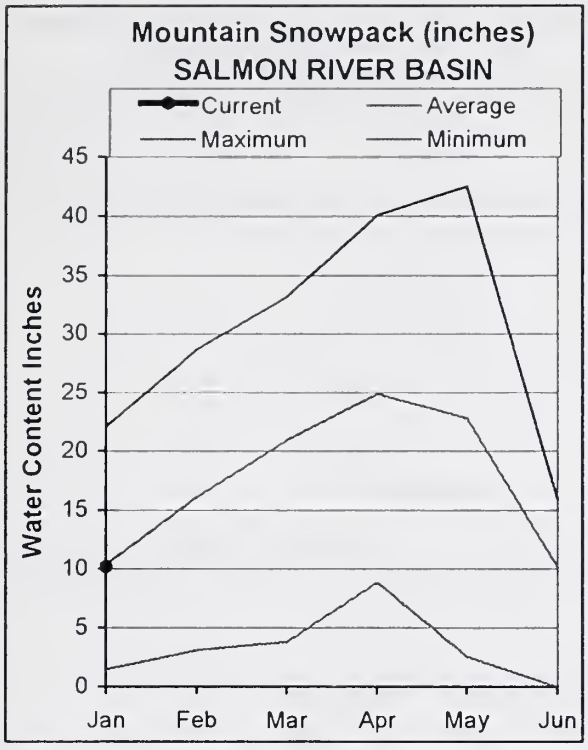
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
North Fork Clearwater	9	59	59
Lochsa River	3	87	65
Selway River	4	83	75
Clearwater Basin Total	17	63	61

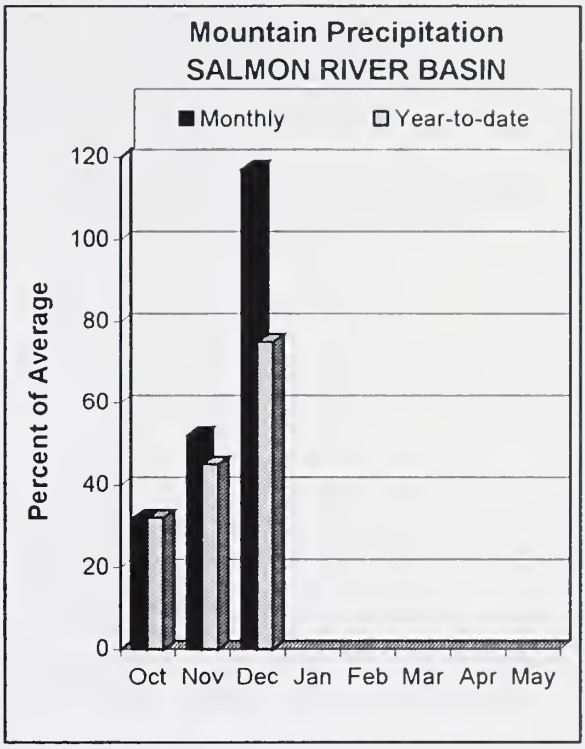
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

SALMON RIVER BASIN
JANUARY 1, 2003





WATER SUPPLY OUTLOOK

Fall precipitation amounts in the Salmon basin summarize how dry it was: October precipitation was 32% of average, with mountainous SNOTEL sites ranging from 0.2 to 1.8 inches. Normal October amounts are 2-7 inches. November precipitation was half of normal. December precipitation was 117% of average, first time since December 2001 that the Salmon basin has received above normal monthly precipitation. Water year to date precipitation is only 75% of average. The last week of December brought much needed moisture to the central mountains from the Little Salmon to the Big Wood basin allowing some SNOTEL sites to double in snow depth and water content. Deadwood SNOTEL site at 6,680 feet in elevation between Warm Lake and Deadwood Reservoir increased from 11.5 inches of snow water on December 26 to 19.4 inches on January 1; likewise, snow depths increased from 50 inches to 88 inches! The snowpack is the highest in the Little Salmon and South Fork Salmon basins at 110% of average and decreases from west to east. Middle Fork Salmon River snowpack is 91% of average; Salmon River above Salmon is 90%; and the Lemhi River is 65%. April-September streamflow forecasts reflect the snowpack in the mountainous headwaters calling for 88% of average for the Salmon River above Salmon and 89% for the Salmon River at White Bird. When El Nino conditions are active in the south Pacific Ocean like it is this year, the following summer streamflow for the April-September period at Salmon River near White Bird has been above average 11 out of 21 El Nino years since 1934. However, the average during these El Nino years is 88%. Lets hope the storms keep the central mountains white and make it 12 out of 22 years with above average streamflow during El Nino type years!

SALMON RIVER BASIN

Streamflow Forecasts - January 1, 2003

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SALMON at Salmon (1)	APR-JUL	308	612	750	88	888	1192	857
	APR-SEP	433	737	875	88	1013	1317	1000
SALMON at White Bird (1)	APR-JUL	2851	4466	5200	89	5934	7549	5851
	APR-SEP	3411	5026	5760	89	6494	8109	6482

SALMON RIVER BASIN

Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

SALMON RIVER BASIN

Watershed Snowpack Analysis - January 1, 2003

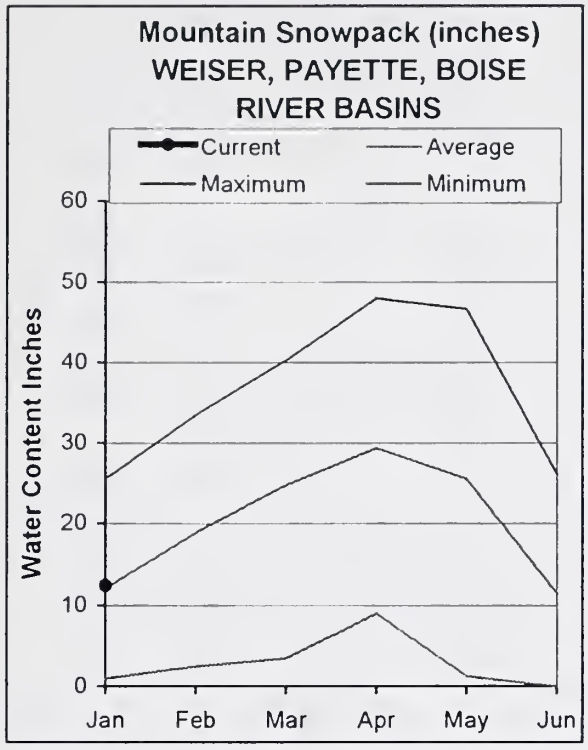
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Salmon River ab Salmon	9	98	90
Lemhi River	6	83	65
Middle Fork Salmon River	4	97	91
South Fork Salmon River	3	108	109
Little Salmon River	4	95	110
Salmon Basin Total	24	97	92

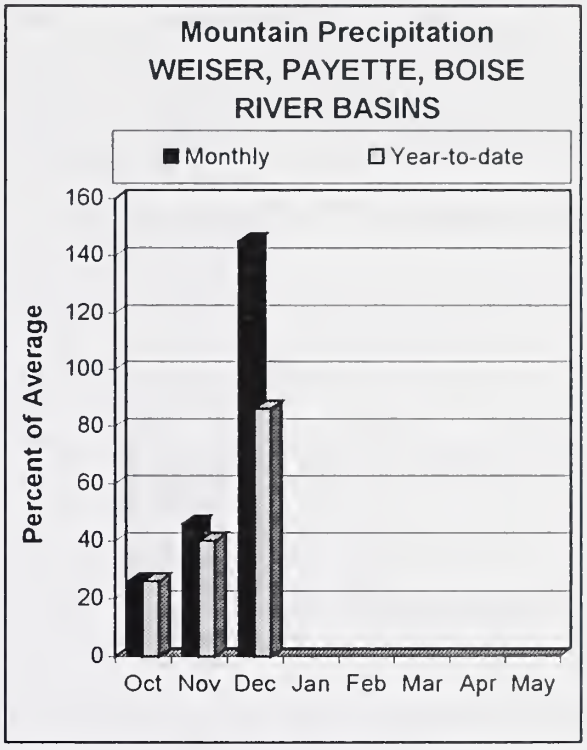
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

WEISER, PAYETTE, BOISE RIVER BASINS JANUARY 1, 2003





WATER SUPPLY OUTLOOK

October precipitation in these west-central mountains was the lowest in the state at 26% of average. November was only a little better at 46% of average. December precipitation was 145% of average, first time in a year with above normal precipitation. Late December's moisture nearly doubled the snow water and depth at many automated measuring stations. Water year to date precipitation remains below normal at 86% of average. As a result of the dry fall, soils under the snowpack as monitored at Jackson Peak SNOTEL site at 4, 8 and 20 inches deep, are nearly as dry now as they were at the end of summer. Snowpacks are currently near normal in these basins, but based on previous years of monitoring soil moisture, the dry soils under the snow will absorb 3-5 inches of water when the snow melts. Payette reservoir system storage is 89% of average, better than last year. The Boise reservoir system is 59% of average, about the same as a year ago. Streamflow forecasts range from 85-100% of average runoff. Streamflow runoff greater than 65% of average is needed to provide adequate irrigation in the Boise basin. With more than half the winter still to come and only 40% of the April 1 seasonal snow water amounts currently on the ground, the water supply picture can still change for the better or worse.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - January 1, 2003

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
WEISER near Weiser (1)	APR-SEP	154	316	390	93	464	626	420
SF PAYETTE at Lowman	APR-JUL	238	323	380	87	437	522	438
	APR-SEP	278	368	430	87	492	582	494
DEADWOOD RESERVOIR Inflow (1,2)	APR-JUL	78	114	130	97	146	182	134
	APR-SEP	83	119	135	95	151	187	142
LAKE FORK PAYETTE near McCall	APR-JUL	65	77	85	100	93	105	85
	APR-SEP	69	81	89	100	97	109	89
NF PAYETTE at Cascade (1,2)	APR-JUL	294	432	495	101	558	696	488
	APR-SEP	329	467	530	100	593	731	530
NF PAYETTE nr Banks (2)	APR-JUL	418	553	645	100	737	872	643
	APR-SEP	447	589	685	99	781	923	690
PAYETTE nr Horseshoe Bend (1,2)	APR-JUL	879	1347	1560	97	1773	2241	1610
	APR-SEP	1004	1483	1700	97	1917	2396	1755
BOISE near Twin Springs (1)	APR-JUL	400	531	590	93	649	780	636
	APR-SEP	385	560	640	93	720	895	691
SF BOISE at Anderson Ranch Dam (1,2)	APR-JUL	361	460	505	93	550	649	542
	APR-SEP	312	479	555	96	631	798	579
MORES CREEK near Arrowrock Dam	APR-JUL	61	90	109	83	128	157	131
	APR-SEP	64	93	113	83	133	162	137
BOISE near Boise (1,2)	APR-JUN	687	1023	1175	93	1327	1663	1258
	APR-JUL	717	1132	1320	93	1508	1923	1414
	APR-SEP	790	1210	1400	92	1590	2010	1526

WEISER, PAYETTE, BOISE RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MANN CREEK	11.1	1.2	1.0	3.3
CASCADE	693.2	423.7	326.5	456.4
DEADWOOD	164.0	55.7	53.1	82.5
ANDERSON RANCH	450.2	142.5	78.9	296.8
ARROWROCK	272.2	79.2	168.4	173.1
LUCKY PEAK	293.2	110.0	100.5	95.5
LAKE LOWELL (DEER FLAT)	165.2	59.3	28.2	98.4

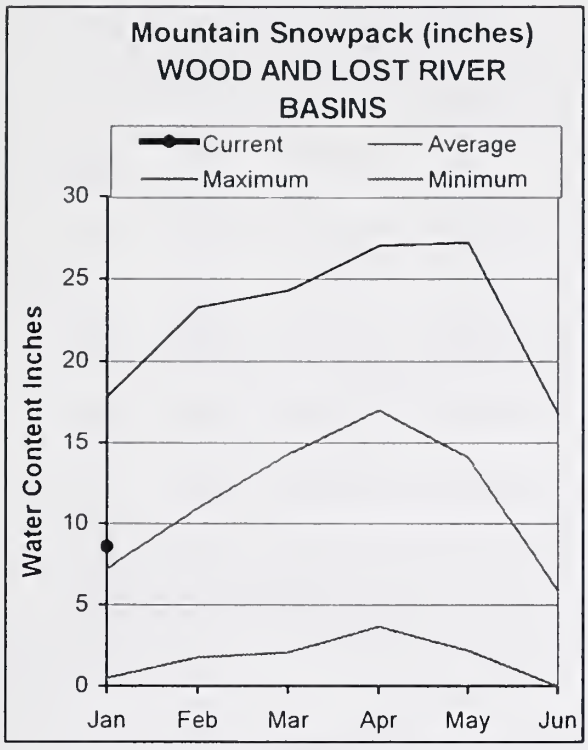
WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - January 1, 2003

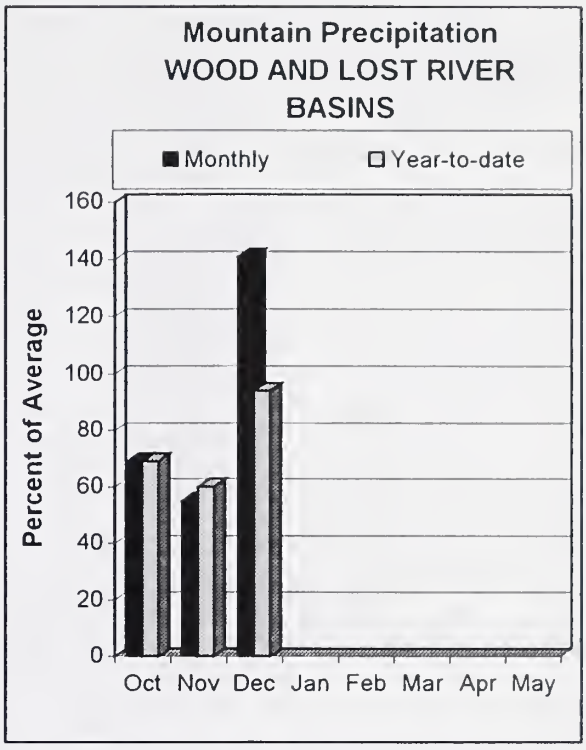
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mann Creek	1	69	91
Weiser River	3	82	104
North Fork Payette	8	100	111
South Fork Payette	5	90	101
Payette Basin Total	14	90	105
Middle & North Fork Boise	6	88	97
South Fork Boise River	9	82	108
Mores Creek	5	58	95
Boise Basin Total	16	75	102
Canyon Creek	2	53	134

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

WOOD and LOST RIVER BASINS
JANUARY 1, 2003





WATER SUPPLY OUTLOOK

The best snowpacks in the state are in these central Idaho mountains ranging from 115-150% of average. The snow drops off abruptly to 65-85% of average in the Little Lost, Birch, Medicine Lodge, Camas and Beaver basins. Monthly precipitation was below normal in October and November, but December brought 141% of average precipitation. Magic Reservoir remains nearly empty for the second December in a row at only 8% of capacity, 19% of average. Mackay Reservoir is 23% of capacity, 42% of average; 5th lowest December 31 out of 78 years. Only the mid-1930s Dust Bowl years had less water than this year. The low storage is a sign of the dry summer and fall, soils and springs. Little Wood Reservoir is 24% of capacity, half-normal and just slightly better than a year ago. Streamflow forecasts look promising, ranging from 105-110% of average with the exception of the Little Lost River at 80%. Water managers should consider using the 90% or 70% Chance Exceedance Probability Forecasts because of the extreme dry soils and the inefficiency of the snowpack to produce a 1:1 correlation with streamflow following dry years and/or dry springs. For example, the April 1, 1989, snowpack in the Big Lost basin was 96% of average, but only yielded a summer streamflow of 40% of average; April 1, 2002, Big Wood basin snowpack was 81%, yielded a streamflow of 55%. Let's hope the second half of winter brings even more snow to these drought-ridden basins of central Idaho.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - January 1, 2003

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
BIG WOOD at Hailey (1)	APR-JUL	148	231	275	107	323	441	256
	APR-SEP	167	257	305	106	357	485	289
BIG WOOD near Bellevue	APR-JUL	96	153	200	106	253	342	188
	APR-SEP	103	162	210	105	264	354	201
CAMAS CREEK near Blaine	APR-JUL	47	79	105	105	135	187	100
	APR-SEP	47	79	106	105	136	188	101
BIG WOOD below Magic Dam (2)	APR-JUL	120	233	310	107	387	500	291
	APR-SEP	129	246	325	106	404	521	307
LITTLE WOOD near Carey (2)	MAR-JUL	47	80	102	106	124	157	96
	MAR-SEP	52	87	110	106	133	168	104
BIG LOST at Howell Ranch	APR-JUN	97	127	147	110	167	197	134
	APR-JUL	118	160	189	110	218	260	172
	APR-SEP	137	183	215	109	247	293	197
BIG LOST below Mackay Reservoir (2)	APR-JUL	81	122	150	106	178	219	142
	APR-SEP	109	154	184	106	214	259	173
LITTLE LOST blw Wet Creek	APR-JUL	16.1	21	25	81	29	34	31
	APR-SEP	19.9	27	31	80	36	42	39

WOOD AND LOST RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MAGIC	191.5	14.8	13.7	79.7
LITTLE WOOD	30.0	7.3	6.5	14.1
MACKAY	44.4	10.0	15.0	23.7

WOOD AND LOST RIVER BASINS
Watershed Snowpack Analysis - January 1, 2003

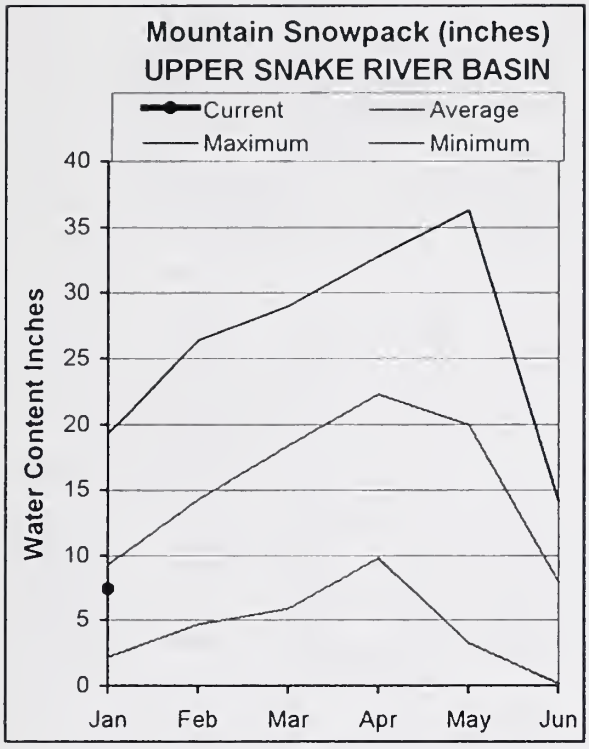
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Big Wood ab Hailey	8	111	113
Camas Creek	5	77	131
Big Wood Basin Total	12	96	117
Little Wood River	4	153	159
Fish Creek	0	0	0
Big Lost River	5	143	133
Little Lost River	3	97	80
Birch-Medicine Lodge Cree	2	84	65
Camas-Beaver Creeks	4	65	84

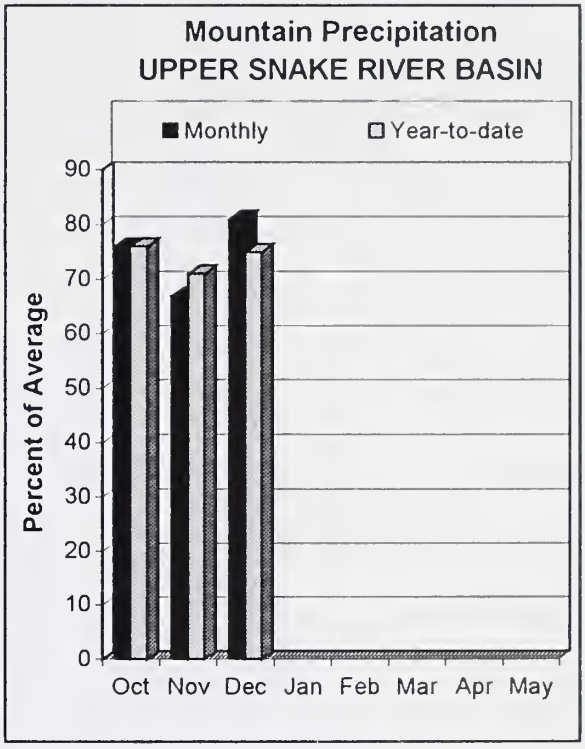
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

UPPER SNAKE RIVER BASIN
JANUARY 1, 2003





WATER SUPPLY OUTLOOK

Precipitation the first three months of the new water year ranged from 67% to 81% of average. Water year to date precipitation is 75% of average. Snowpacks are similar, ranging from 70-85% of average. Combined reservoir storage in Palisades Reservoir and Jackson Lake is about 100,000 acre-feet more than a year ago but is the 4th lowest December 31 combined storage since 1957. Only December 1988, 1992 and 2002 had less storage than this year. Overall, the combined reservoir storage for the 7 major reservoirs in the upper Snake is 36% of capacity, 57% of average, slightly better than a year ago. Streamflow forecasts for next summer range from 63-83% of average. Snake River near Heise is forecast at 81% of average. Streamflow in the 80-90% of average range at Snake River near Heise is needed to provide adequate irrigation water supplies. Unless the spring is unusually wet, the snowpack is not as efficient at producing a 1:1 relationship with streamflow following drought years due to dry soils and springs. For example: in 2002, the April 1 snowpack was 80% of average but yielded just 65% of average summer streamflow. In 1989, the snowpack was 113% of average on April 1 and yielded 70% of average streamflow. Spring precipitation is also important in improving the efficiency of the snowmelt. Water managers should consider using a lesser forecast such as the 70% Chance Exceedance Probability Forecasts to reduce risk of not having enough water. Keep your fingers crossed for a lot more snow!

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - January 1, 2003

Forecast Point	Forecast Period	<<== Drier == Future Conditions == Wetter ==>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
HENRYS FORK near Ashton (2)	APR-JUL	342	397	435	76	473	528	571
	APR-SEP	508	546	590	77	634	700	763
HENRYS FORK near Rexburg (2)	APR-JUL	699	869	985	63	1101	1271	1559
	APR-SEP	917	1109	1240	62	1371	1563	2013
FALLS near Squirrel (1,2)	APR-JUL	214	273	300	78	327	386	386
	APR-SEP	252	320	350	77	380	448	456
TETON near Driggs	APR-JUL	82	112	133	81	154	184	165
	APR-SEP	113	150	175	83	200	237	210
TETON near St. Anthony	APR-JUL	212	276	320	79	364	428	403
	APR-SEP	252	325	375	78	425	498	482
SNAKE near Moran (1,2)	APR-SEP	474	636	710	79	784	946	904
PACIFIC CREEK at Moran	APR-SEP	88	114	132	74	150	176	178
SNAKE above Palisades (2)	APR-JUL	1400	1704	1910	81	2116	2420	2370
	APR-SEP	1637	1978	2210	81	2442	2783	2735
GREYS above Palisades	APR-JUL	166	225	266	79	307	366	338
	APR-SEP	205	270	315	80	360	425	394
SALT near Etna	APR-JUL	158	228	275	80	322	392	342
	APR-SEP	201	281	335	80	389	469	419
PALISADES RESERVOIR INFLOW (1,2)	APR-JUL	1742	2401	2700	81	2999	3658	3331
	APR-SEP	2072	2813	3150	81	3487	4228	3875
SNAKE near Heise (2)	APR-JUL	2100	2576	2900	81	3224	3700	3561
	APR-SEP	2437	2981	3350	81	3719	4263	4159
Willow Creek nr Ririe	MAR-JUL	26	46	68	77	101	179	88
BLACKFOOT RESV INFLOW	APR-JUN	35	68	91	76	114	147	120
SNAKE nr Blackfoot (1,2)	APR-JUL	2295	3268	3710	71	4152	5125	5262
	APR-SEP	3185	4158	4600	70	5042	6015	6538
PORTNEUF at Topaz	MAR-JUL	41	54	63	71	72	85	89
	MAR-SEP	54	70	80	73	90	106	109
AMERICAN FALLS RESV INFLOW (1,2)	APR-JUL	675	1861	2400	74	2939	4125	3242
	APR-SEP	875	2061	2600	74	3139	4325	3505

UPPER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of December

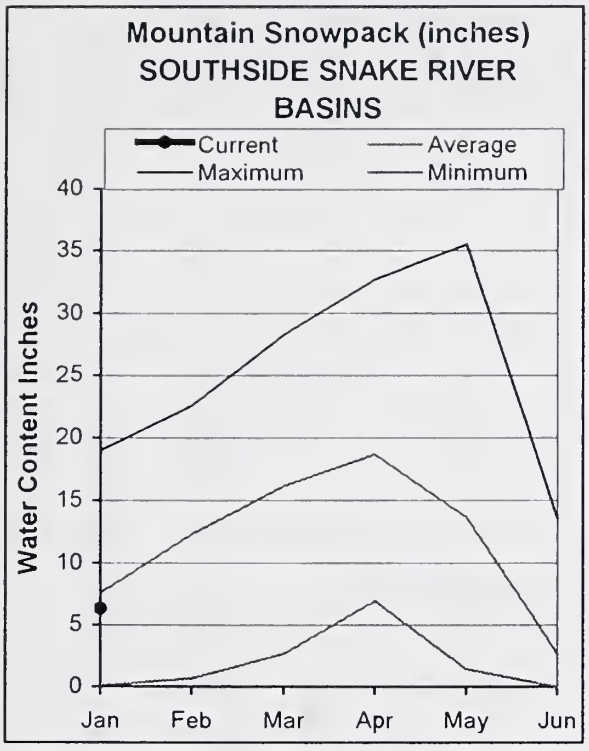
Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HENRYS LAKE	90.4	66.1	53.1	82.5
ISLAND PARK	135.2	56.4	68.8	96.1
GRASSY LAKE	15.2	12.3	9.2	11.6
JACKSON LAKE	847.0	245.7	137.4	481.7
PALISADES	1400.0	443.2	439.3	1036.5
RIRIE	80.5	31.5	27.9	34.5
BLACKFOOT		NO REPORT		
AMERICAN FALLS	1672.6	688.0	697.9	986.6

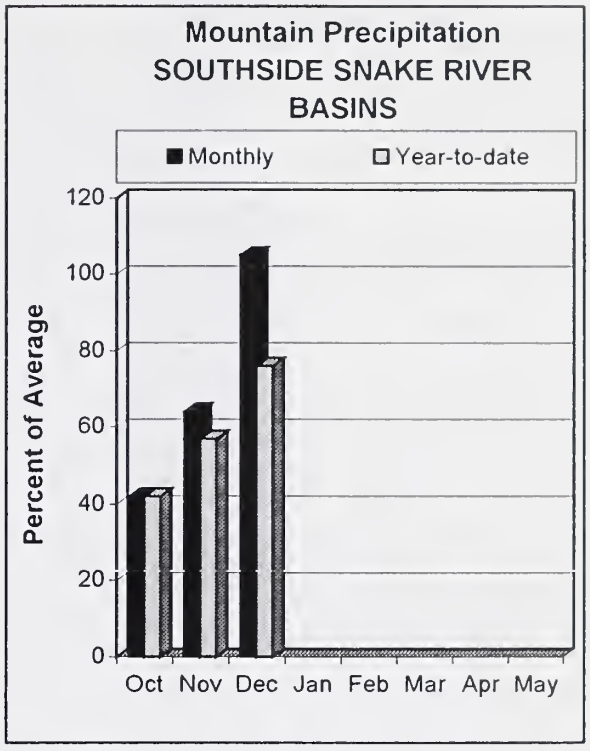
UPPER SNAKE RIVER BASIN
Watershed Snowpack Analysis - January 1, 2003

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Henrys Fork-Falls River	10	79	76
Teton River	7	97	80
Henrys Fork above Rexburg	17	85	78
Snake above Jackson Lake	9	97	82
Gros Ventre River	2	83	74
Hoback River	5	81	73
Greys River	4	80	69
Salt River	3	102	83
Snake above Palisades	21	91	79
Willow Creek	7	73	82
Blackfoot River	3	81	86
Portneuf River	2	69	80
Snake abv American Falls	31	86	79

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table. The average is computed for the 1971-2000 base period.
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

SOUTHSIDE SNAKE RIVER BASINS JANUARY 1, 2003





WATER SUPPLY OUTLOOK

The new water year started where the old one left off--dry. October precipitation was only 42% of average, increased to 64% in November, and was near normal in December. Water year to date precipitation is only 76% of average. The lack of summer and fall precipitation also produced low fall stream levels. The Bruneau River October-December total flow was the 4th lowest since 1944. Only 1990, 1992 and last year had less flow than this year. Similarly, Salmon Falls Creek October-December flow was the 10th lowest since 1911. As a result, soils are dry and a lot more snow is needed! Snowpacks increase from east to west with the Raft and Oakley basins at 72% of average, Salmon Falls at 79%, Bruneau basin at 91% and Owyhee basin at 98%. Salmon Falls, Oakley, Wildhorse and Owyhee reservoirs are storing about the same as a year ago, ranging from 5-25% of capacity or 20-50% of average. Streamflow forecasts are low, ranging from 55-75% of average. Water users will be watching this year closely and hoping for much more snow.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - January 1, 2003

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
OAKLEY RESV INFLOW	MAR-JUL	11.2	17.2	22	65	27	36	34
	MAR-SEP	12.6	18.9	24	65	30	39	37
OAKLEY RESV STORAGE	FEB-28	12.4	14.7	16.2	52	17.7	20	31
	MAR-31	16.1	19.0	21	58	23	26	36
	APR-30	18.4	22	25	61	28	32	41
SALMON FALLS CREEK nr San Jacinto	MAR-JUN	31	46	58	65	71	93	89
	MAR-JUL	33	49	61	66	75	98	93
	MAR-SEP	35	51	64	65	78	102	98
SALMON FALLS RESV STORAGE	FEB-28	13.0	16.7	19.2	32	22	25	60
	MAR-31	20	27	32	46	37	44	70
	APR-30	23	33	39	44	46	55	89
BRUNEAU near Hot Spring	MAR-JUL	106	148	180	76	215	273	237
	MAR-SEP	114	157	191	77	228	288	248
OWYHEE nr Owyhee (2)	APR-JUL	23	42	63	77	84	115	82
OWYHEE near Rome	FEB-JUL	135	264	375	57	506	734	655
OWYHEE RESV INFLOW (2)	FEB-JUL	186	330	450	64	589	828	700
	FEB-SEP	206	353	475	65	616	855	730
	APR-SEP	112	203	280	65	369	523	428
SUCCOR CK nr Jordan Valley	FEB-JUL	5.7	10.2	15.0	78	19.8	27	19.3
SNAKE RIVER at King Hill (1,2)	APR-JUL	549	1499	1930	63	2361	3311	3045
SNAKE RIVER near Murphy (1,2)	APR-JUL	650	1613	2050	66	2487	3450	3092
SNAKE RIVER at Weiser (1,2)	APR-JUL	415	2557	3530	61	4503	6645	5765
SNAKE RIVER at Hells Canyon Dam (1,2	APR-JUL	575	2923	3990	62	5057	7405	6493
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	4927	12404	15800	73	19196	26673	21550

SOUTHSIDE SNAKE RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
OAKLEY	74.5	11.1	9.8	25.7
SALMON FALLS	182.6	11.1	9.8	52.6
BROWNLEE		NO REPORT		

SOUTHSIDE SNAKE RIVER BASINS
Watershed Snowpack Analysis - January 1, 2003

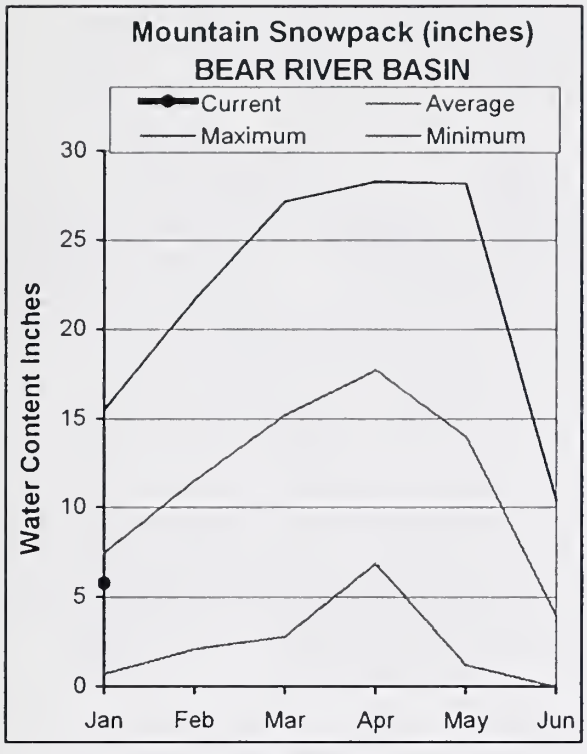
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Raft River	1	40	71
Goose-Trapper Creeks	3	45	73
Salmon Falls Creek	4	47	70
Bruneau River	1	58	78
Owyhee Basin Total	3	54	94

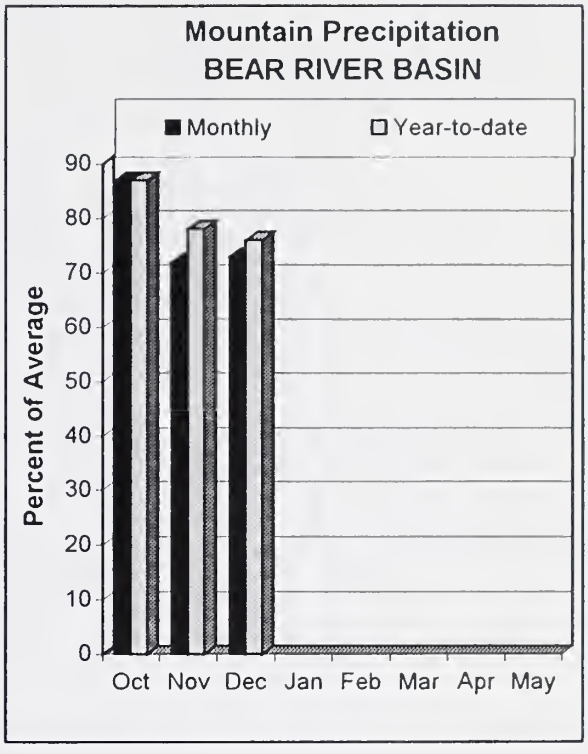
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

BEAR RIVER BASIN
JANUARY 1, 2003





WATER SUPPLY OUTLOOK

The new water year started where the last three have ended--with below normal precipitation. Monthly precipitation this water year was 87% in October, 72% in November and December, and stands at 76% for the water year to date. 1999 was the last water year with above normal precipitation. Snowpack percentages range from 65-85% of average. Overall, the Bear River snowpack is 75% of average. Bear Lake has 352,000 acre-feet; last year it had 574,300 acre-feet. This is the 9th lowest December storage since 1922. Streamflow forecasts reflect the cumulative drought impacts and call for spring and summer streamflows at only 40-70% of average. Last year's spring/summer regulated streamflow at Bear River at Stewart Dam was about 20% of average. This year's streamflow forecast is for 42% average. If Mother Nature doesn't provide the much needed snow, water supplies will be tight this summer.

BEAR RIVER BASIN

Streamflow Forecasts - January 1, 2003

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bear R nr UT-WY State Line	APR-SEP	59	73	85	68	98	122	125
Woodruff Narrows Res inflow	APR-SEP	29	48	63	44	80	110	142
Smiths Fork nr Border	APR-JUL	40	55	69	67	86	119	103
	APR-SEP	50	68	83	70	102	138	118
Bear River blw Stewart Dam	APR-JUL	73	102	122	42	169	237	288
	APR-SEP	86	119	141	43	193	268	327

BEAR RIVER BASIN

Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BEAR LAKE	1421.0	352.0	574.3	907.5
MONTPELIER CREEK		NO REPORT		

BEAR RIVER BASIN

Watershed Snowpack Analysis - January 1, 2003

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Smiths & Thomas Forks	3	73	73
Bear River ab WY-ID line	10	81	75
Montpelier Creek	1	91	87
Mink Creek	1	71	80
Cub River	1	56	66
Bear River ab ID-UT line	15	75	75
Malad River	1	52	78

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

influences from upstream reservoirs or diversions These values are referred to as natural or adjusted flows. To make these adjustments, changes in reservoir storage, diversions, and inter-basin transfers are added or subtracted from the observed (actual) streamflow volumes. The following list documents the adjustments made to each forecast point in this report. (Revised 12/2000).

Panhandle River Basins

KOOTENAI R AT LEONIA, ID
+ LAKE KOOCANUSA (STORAGE CHANGE)

BOUNDARY CREEK NEAR PORTHILL, ID – No Corrections

MOYIE RIVER AT EASTPORT, ID – No Corrections

SMITH CREEK NEAR PORTHILL, ID – No Corrections

CLARK FORK AT WHITEHORSE RAPIDS, ID
+ HUNGRY HORSE (STORAGE CHANGE)
+ FLATHEAD LAKE (STORAGE CHANGE)
+ NOXON RAPIDS RESV (STORAGE CHANGE)

PEND OREILLE LAKE INFLOW, ID
+ PEND OREILLE R AT NEWPORT, WA
+ HUNGRY HORSE (STORAGE CHANGE)
+ FLATHEAD LAKE (STORAGE CHANGE)
+ NOXON RAPIDS (STORAGE CHANGE
+ PEND OREILLE LAKE (STORAGE CHANGE)
+ PRIEST LAKE (STORAGE CHANGE)

PRIEST R NR PRIEST R, ID
+ PRIEST LAKE (STORAGE CHANGE)

COEUR D'ALENE R AT ENAVILLE, ID - No Corrections

ST. JOE R AT CALDER, ID - No Corrections

SPOKANE R NR POST FALLS, ID
+ COEUR D'ALENE LAKE (STORAGE CHANGE)

SPOKANE R AT LONG LAKE, WA
+ COEUR D'ALENE LAKE (STORAGE CHANGE)
+ LONG LAKE, WA (STORAGE CHANGE)

Clearwater River Basin

DWORSHAK RESERVOIR INFLOW, ID
+ DWORSHAK RESV (STORAGE CHANGE)
- CLEARWATER R AT OROFINO, ID
+ CLEARWATER R NR PECK, ID

LOCHSA RIVER NR LOWELL - No Corrections

SELWAY RIVER NR LOWELL - No Corrections

CLEARWATER R AT OROFINO, ID - No Corrections

CLEARWATER R AT SPALDING, ID
+ DWORSHAK RESV (STORAGE CHANGE)

Salmon River Basin

SALMON R AT SALMON, ID - No Corrections

SALMON R AT WHITE BIRD, ID - No Corrections

Weiser, Payette, Boise River Basins

WEISER R NR WEISER, ID - No Corrections

SF PAYETTE R AT LOWMAN, ID - No Corrections

DEADWOOD RESERVOIR INFLOW, ID
+ DEADWOOD R BLW DEADWOOD RESV NR LOWMAN
+ DEADWOOD RESV (STORAGE CHANGE)

LAKE FORK PAYETTE RIVER NR MCCALL, ID – No Corrections

NF PAYETTE R AT CASCADE, ID
+ CASCADE RESV (STORAGE CHANGE)

NF PAYETTE R NR BANKS, ID
+ CASCADE RESV (STORAGE CHANGE)

PAYETTE R NR HORSESHOE BEND, ID
+ DEADWOOD RESV (STORAGE CHANGE)
+ CASCADE RESV (STORAGE CHANGE)

BOISE R NR TWIN SPRINGS, ID - No Corrections

SF BOISE R AT ANDERSON RANCH DAM, ID
+ ANDERSON RANCH RESV (STORAGE CHANGE)

BOISE R NR BOISE, ID
+ ANDERSON RANCH RESV (STORAGE CHANGE)
+ ARROWROCK RESV (STORAGE CHANGE)
+ LUCKY PEAK RESV (STORAGE CHANGE)

Wood and Lost River Basins

BIG WOOD R AT HAILEY, ID - No Corrections

BIG WOOD R NR BELLEVUE, ID - No Corrections

CAMAS CREEK NEAR BLAINE – No Corrections

BIG WOOD R BLW MAGIC DAM NR RICHFIELD, ID
+ MAGIC RESV (STORAGE CHANGE)

LITTLE WOOD R NR CAREY, ID
+ LITTLE WOOD RESV (STORAGE CHANGE)

BIG LOST R AT HOWELL RANCH NR CHILLY, ID - No Corrections

BIG LOST R BLW MACKAY RESV NR MACKAY, ID
+ MACKAY RESV (STORAGE CHANGE)

LITTLE LOST R BLW WET CK NR HOWE, ID - No Corrections

Upper Snake River Basin

HENRYS FORK NR ASHTON, ID
+ HENRYS LAKE (STORAGE CHANGE)
+ ISLAND PARK RESV (STORAGE CHANGE)

HENRYS FORK NR REXBURG, ID
+ HENRYS LAKE (STORAGE CHANGE)
+ ISLAND PARK RESV (STORAGE CHANGE)
+ DIV FM HENRYS FK BTW ASHTON & ST. ANTHONY, ID
+ DIV FM HENRYS FK BTW ST. ANTHONY & REXBURG, ID
+ GRASSY LAKE (STORAGE CHANGE)

FALLS R ABV YELLOWSTONE CANAL NR SQUIRREL, ID
+ GRASSY LAKE (STORAGE CHANGE)

TETON R ABV SO LEIGH CK NR DRIGGS, ID - No Corrections

TETON R NR ST. ANTHONY, ID
- CROSS CUT CANAL
+ SUM OF DIVERSIONS ABV GAGE

SNAKE R NR MORAN, WY
+ JACKSON LAKE (STORAGE CHANGE)

PALISADES RESERVOIR INFLOW, ID
+ SNAKE R NR IRWIN, ID
+ JACKSON LAKE (STORAGE CHANGE)
+ PALISADES RESV (STORAGE CHANGE)

SNAKE R NR HEISE, ID
+ JACKSON LAKE (STORAGE CHANGE)
+ PALISADES RESV (STORAGE CHANGE)

BLACKFOOT RESVERVOIR INFLOW, ID
+ BLACKFOOT RIVER
+ BLACKFOOT RESERVOIR (STORAGE CHANGE
SNAKE R NR BLACKFOOT, ID
+ PALISADES RESV (STORAGE CHANGE)
+ JACKSON LAKE (STORAGE CHANGE)
+ DIV FM SNAKE R BTW HEISE AND SHELLY GAGES
+ DIV FM SNAKE R BTW SHELLY AND BLACKFT, ID
PORTNEUF R AT TOPAZ, ID - No Corrections
AMERICAN FALLS RESERVOIR INFLOW, ID
+ SNAKE RIVER AT NEELEY
+ ALL CORRECTIONS MADE FOR HENRYS FK NR REXBURG, ID
+ JACKSON LAKE (STORAGE CHANGE)
+ PALISADES RESV (STORAGE CHANGE)
+ DIV FM SNAKE R BTW HEISE AND SHELLY GAGES
+ DIV FM SNAKE R BTW SHELLY AND BLACKFT GAGES

Southside Snake River Basins

OAKLEY RESERVOIR INFLOW, ID
+ GOOSE CK ABV TRAPPER CK NR OAKLEY, ID
+ TRAPPER CK NR OAKLEY, ID
SALMON FALLS CK NR SAN JACINTO, NV - No Corrections
BRUNEAU R NR HOT SPRINGS, ID - No Corrections
OWYHEE R NR GOLD CK, NV
+ WILDHORSE RESV (STORAGE CHANGE)
OWYHEE R NR OWYHEE, NV
+ WILDHORSE RESV (STORAGE CHANGE)
OWYHEE R NR ROME, OR – No Corrections
OWYHEE RESERVOIR INFLOW, OR
+ OWYHEE R BLW OWYHEE DAM, OR
+ OWYHEE RESV (STORAGE CHANGE)
+ DIV TO NORTH AND SOUTH CANALS
SUCCOR CK NR JORDAN VALLEY, OR - No Corrections
SNAKE R - KING HILL, ID - No Corrections
SNAKE R NR MURPHY, ID - No Corrections
SNAKE R AT WEISER, ID - No Corrections
SNAKE R AT HELLS CANYON DAM, ID
+ BROWNLEE RESV (STORAGE CHANGE)

Bear River Basin

BEAR R NR RANDOLPH, UT
+ SULPHUR CK RESV (STORAGE CHANGE)
+ CHAPMAN CANAL DIVERSION
+ WOODRUFF NARROWS RESV (STORAGE CHANGE)
SMITHS FORK NR BORDER, WY - No Corrections
THOMAS FORK NR WY-ID STATELINE - No Corrections (Disc)
BEAR R BLW STEWART DAM, ID
+ SULPHUR CK RESV (STORAGE CHANGE)
+ CHAPMAN CANAL DIVERSION
+ WOODRUFF NARROWS RESV (STORAGE CHANGE)
+ DINGLE INLET CANAL
+ RAINBOW INLET CANAL
MONTPELIER CK AT IRR WEIR NR MONTPELIER, ID (Disc)
+ MONTPELIER CK RESV (STORAGE CHANGE)
CUB R NR PRESTON, ID - No Corrections

RESERVOIR CAPACITY DEFINITIONS (Units in 1,000 acre-feet, KAF)
Different agencies use various definitions when reporting reservoir capacity and contents. Reservoir storage terms include dead, inactive, active, and surcharge storage. This table lists these volumes for each reservoir, and defines the storage volumes NRCS uses when reporting capacity and current reservoir storage. In most cases, NRCS reports usable storage, which includes active and inactive storage. (Revised January 2002)

BASIN/ RESERVOIR	DEAD STORAGE	INACTIVE STORAGE	ACTIVE STORAGE	SURCHARGE STORAGE	NRCS CAPACITY	NRCS CAPACITY INCLUDES
PANHANDLE REGION						
HUNGRY HORSE	39.73	--	3451.00	--	3451.0	ACTIVE
FLATHEAD LAKE	Unknown	--	1791.00	--	1971.0	ACTIVE
NOXON RAPIDS	Unknown	--	335.00	--	335.0	ACTIVE
PEND OREILLE	406.20	112.40	1042.70	--	1561.3	DEAD+INACTIVE+ACTIVE
COEUR D'ALENE	--	13.50	225.00	--	238.5	INACTIVE+ACTIVE
PRIEST LAKE	20.00	28.00	71.30	--	119.3	DEAD+INACTIVE+ACTIVE
CLEARWATER BASIN						
DWORSHAK	--	1452.00	2016.00	--	3468.0	INACTIVE+ACTIVE
WEISER/BOISE/PAYETTE BASINS						
MANN CREEK	1.61	0.24	11.10	--	11.1	ACTIVE
CASCADE	--	46.70	646.50	--	693.2	INACTIVE+ACTIVE
DEADWOOD	--	--	164.00	--	164.0	ACTIVE
ANDERSON RANCH	24.90	37.00	413.10	--	450.1	INACTIVE+ACTIVE
ARROWROCK	--	--	272.20	--	272.2	ACTIVE
LUCKY PEAK	--	28.80	264.40	13.80	293.2	INACTIVE+ACTIVE
LAKE LOWELL	7.90	5.80	159.40	--	165.2	INACTIVE+ACTIVE
WOOD/LOST BASINS						
MAGIC	--	--	191.50	--	191.5	ACTIVE
LITTLE WOOD	--	--	30.00	--	30.0	ACTIVE
MACKAY	0.13	--	44.37	--	44.4	ACTIVE
UPPER SNAKE BASIN						
HENRYS LAKE	--	--	90.40	--	90.4	ACTIVE
ISLAND PARK	0.40	--	127.30	7.90	135.2	ACTIVE+SURCHARGE
GRASSY LAKE	--	--	15.18	--	15.2	ACTIVE
JACKSON LAKE	--	--	847.00	--	847.0	ACTIVE
PALISADES	44.10	155.50	1200.00	--	1400.0	DEAD+INACTIVE+ACTIVE
RIRIE	4.00	6.00	80.54	10.00	80.5	ACTIVE
BLACKFOOT	--	--	348.73	--	348.7	ACTIVE
AMERICAN FALLS	--	--	1672.60	--	1672.6	ACTIVE
SOUTHSIDE SNAKE BASINS						
OAKLEY	--	--	74.50	--	74.5	ACTIVE
SALMON FALLS	48.00	--	182.65	--	182.6	ACTIVE
WILDHORSE	--	--	71.50	--	71.5	ACTIVE
OWYHEE	406.83	--	715.00	--	715.0	ACTIVE
BROWNLEE	0.45	444.00	975.30	--	1419.3	INACTIVE+ACTIVE
BEAR RIVER BASIN						
WOODRUFF NARROWS	--	1.50	57.30	--	57.3	ACTIVE
WOODRUFF CREEK	--	4.00	4.00	--	4.0	ACTIVE
BEAR LAKE	--	--	1421.00	--	1421.0	ACTIVE
MONTPELIER CREEK	0.21	--	3.84	--	4.0	DEAD+ACTIVE

Interpreting Streamflow Forecasts

ntroduction

ach month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all treamflovv forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water sers need to know what the different forecasts represent if they are to use the information correctly when making perational decisions. The following is an explanation of each of the forecasts.

ost Probable (50 Percent Chance of Exceeding) Forecast. This forecast is the best estimate of streamflow volume at can be produced given current conditions and based on the outcome of similar past situations, There is a 50 percent hance that the streamflow volume will exceed this forecast value. There is a 50 percent chance that the streamflow olume will be less than this forecast value.

he most probable forecast will rarely be exactly right, due to errors resulting from future weather conditions and the recast equation itself. This does not mean that users should not use the most probable forecast; it means that they need evaluate existing circumstances and determine the amount of risk they are willing to take by accepting this forecast alue.

o Decrease the Chance of Having Too Little Water

users want to make sure there is enough water available for their operations, they might determine that a 50 percent hance of the streamflow volume being lower than the most probable forecast is too much risk to take. To reduce the risk f not having enough water available during the forecast period, users can base their operational decisions on one of the recasts with a greater chance of being exceeded (or possibly some point in-between). These include:

70 Percent Chance of Exceeding Forecast. There is a 70 percent chance that the streamflow volume will exceed this forecast value.
There is a 30 percent chance the streamflow volume will be less than
this forecast value.
90 Percent Chance of Exceeding Forecast. There is a 90 percent
chance that the streamflow volume will exceed this forecast value.
There is a 10 percent chance the streamflow volume will be less than this forecast value.

o Decrease the Chance of Having Too Much Water

users want to make sure they don't have too much water, they might determine that a 50 percent chance of the treamflow being higher than the most probable forecast is too much of a risk to take. To reduce the risk of having too much water available during the forecast period, users can base their operational decisions on one of the forecasts with a smaller chance of being exceeded. These include:

30 Percent Chance of Exceeding Forecast. There is a 30 percent chance that the streamflow volume will exceed this forecast value. There is a 70 percent chance the streamflow volume will be less than this forecast value.
10 Percent Chance of Exceeding Forecast. there is a 10 percent chance that the streamflow volume will exceed this forecast value. There is a 90 percent chance the streamflow volume will be less than this forecast value.

Using the forecasts - an example

Using the Most Probable Forecast. Using the example forecasts shown below, users can reasonably expect 36,000 acre-feet to flow past the gaging station on the Mary's River near Death between March I and July 31.

Using the Higher Exceedence Forecasts. If users anticipate a somewhat drier trend in the future (monthly and seasonal weather outlooks are **available** from the **National** Weather Service every two weeks), or if **they are** operating **at a level** where an unexpected shortage of water could cause problems, they might want to plan on receiving only 20,000 acre-feet (from the 70 percent chance of exceeding forecast). In seven out of ten years with similar conditions, streamflow volumes will exceed the 20,000 acre-foot forecast.

If users anticipate extremely dry conditions for the remainder of the season, or if they determine the risk of using the 70 percent chance of exceeding forecast is too great, then they might plan on receiving only 5000 acre-feet (from the 90 percent chance of exceeding forecast). Nine out of ten years with similar conditions, streamflow volumes will exceed the 5000 acre-foot forecast.

Using the Lower Exceedance Forecasts. If users expect wetter future conditions, or if the chance that five out of every ten years with similar conditions would produce streamflow volumes greater than 36,000 acre-feet was more than they would like to risk, they might plan on receiving 52,000 acre-feet (from the 30 percent chance of exceeding forecast) to minimize potential flooding problems. Three Out of ten years with similar conditions, streamflows will exceed the 52,000 acre-foot forecast.

In years when users expect extremely wet conditions for the remainder of the season and the threat of severe flooding and downstream damage exists, they might choose to use the 76,000 acre-foot (10 percent chance of exceeding) forecast for their water management operations. Streamflow volumes will exceed this level only one year out of ten.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SF PAYETTE RIVER at Lowman	APR-JUL	329	414	471	109	528	613	432
	APR-SEP	369	459	521	107	583	673	488
BOISE RIVER near Twin Springs (1)	APR-JUL	443	610	685	109	760	927	631
	APR-SEP	495	670	750	109	830	1005	

*For more information concerning streamflow forecasting ask your local NRCS field office for a copy of "***A Field** ***Office Guide*** **for** ***Interpreting Streamflow Forecasts"*** *or visit our Web page.*

USDA Natural Resources Conservation Service
9173 West Barnes Drive, Suite C
Boise ID 83709-1574

OFFICIAL BUSINESS

Issued by
Bruce I. Knight, Chief
Natural Resources Conservation Service
Washington, DC

Released by
Richard Sims, State Conservationist
Natural Resources Conservation Service
Boise. Idaho

Prepared by
Snow Survey Staff
Ron Abramovich, Water Supply Specialist
Philip Morrisey, Hydrologist
Kelly Vick, Data Analyst
Bill Patterson, Electronics Technician
Jeff Graham, Electronics Technician

Cooperative funding for printing provided by
Idaho Department of Water Resources

Numerous other agencies provide funding
and/or cooperative support. Their cooperation
is greatly appreciated.